

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Previously Presented): An expandable tubular joint comprising:
a first tubular element including a first portion, provided with a male thread, and
a second portion extending said first portion and comprising

- i) a first outer surface,
- ii) a first annular lip having a first axial abutment surface and a first inner
surface and delimited by said first outer surface over a portion of the axial length
thereof, and
- iii) a second abutment surface; and

a second tubular element comprising

- i) a female thread, matching the male thread and screwed thereto,
- ii) a second annular lip having a third abutment surface resting against said
second abutment surface, a second outer surface, arranged to face said first inner
surface, and a second inner surface,
- iii) a fourth axial abutment surface, and
- iv) a third inner surface extending between said fourth axial abutment surface
and said female thread and defining with said second outer surface and fourth
abutment surface an annular recess configured to receive said first lip,
wherein said second and third abutment surfaces are conical surfaces having
substantially identical angles of inclination relative to a plane transverse to a longitudinal
direction, selected so as to allow said second abutment surface to rest against said third
abutment surface, generating a first radial and sealing interference contact of one of said first
inner and outer surfaces of the first lip against said second outer surface or said third inner
surface respectively, and such that, during a diametral expansion in a plastic deformation

region subsequently carried out on the expandable tubular joint, said first outer surface and said third inner surface are forced locally to define a second sealing interference contact.

Claim 2 (Previously Presented): The joint according to claim 1, wherein said conical surfaces of the second and third abutment surfaces are convex and concave respectively, so as to generate said first radial and sealing interference contact of the first inner surface against the second outer surface.

Claim 3 (Previously Presented): The joint according to claim 1, wherein said conical surfaces of the second and third abutment surfaces are concave and convex respectively, so as to generate said first radial and sealing interference contact of the first outer surface against the third inner surface.

Claim 4 (Previously Presented): The joint according to claim 1, wherein said inclinations are initially between approximately $+5^\circ$ and approximately $+30^\circ$.

Claim 5 (Previously Presented): The joint according to claim 1, wherein said first lip and said recess initially have shapes selected such that said first interference contact is not generated until said second abutment surface rests on said third abutment surface.

Claim 6 (Previously Presented): The joint according to claim 1, wherein said first abutment surface is arranged to be forced during screwing to rest against said fourth abutment surface so as to cause said first lip to be subjected to axial compression in an elastic deformation region.

Claim 7 (Previously Presented): The joint according to claim 1, wherein the second outer surface of said second lip initially has, in the region of its connection to said third abutment surface, an annular portion inclined relative to said longitudinal direction by an angle of between approximately 8° and approximately 12°.

Claim 8 (Previously Presented): The joint according to claim 1, wherein said first inner surface of the first lip is initially inclined relative to said longitudinal direction by an angle of between approximately 0.1° and approximately 15°.

Claim 9 (Previously Presented): The joint according to claim 1, wherein the ratio between an extension of the second lip in the longitudinal direction and an extension of the recess in the transverse direction is between approximately 1 and approximately 3.

Claim 10 (Previously Presented): The joint according to claim 1, wherein said male and female threads initially comprise threads provided with a carrier flank having a negative angle of between approximately -3° and approximately -15°.

Claim 11 (Previously Presented): The joint according to claim 1, wherein said male and female threads initially comprise threads provided with a stabbing flank having a positive angle of between approximately +10° and approximately +30°.

Claim 12 (Previously Presented): The joint according to claim 11, wherein said male and female threads are arranged to have, after screwing and prior to expansion, an axial clearance between their stabbing flanks of between approximately 0.05 mm and approximately 0.3 mm.

Claim 13 (Previously Presented): The joint according to claim 1, wherein said first tubular element initially has, in the region of its first outer surface and before its first portion (P1), a conical chamfer defining a first local annular set-back toward the interior of the joint.

Claim 14 (Previously Presented): The joint according to claim 13, wherein said chamfer has a slope which is substantially continuous relative to the longitudinal direction and between approximately 8° and approximately 12°.

Claim 15 (Previously Presented): The joint according to claim 1, wherein said first tubular element is provided with the second portion initially having a local annular added thickness selected in the region of a fourth inner surface extending said second abutment surface in the direction of the first portion, and said third inner surface comprises, at a selected location, a groove suitable for being arranged after screwing substantially in the region of said local added thickness and for defining in the region of the first outer surface, during the diametral expansion, an annular shoulder having at least a portion of the shape of said groove and being in sealing interference contact therewith.

Claim 16 (Previously Presented): The joint according to claim 1, wherein said first tubular element initially has in the region of its first portion, over its inner surface opposing said male thread, a conical neck in which is defined a second local annular set-back.

Claim 17 (Previously Presented): The joint according to claim 16, wherein said neck initially increases substantially continuously at a slope relative to the longitudinal direction of between approximately 2° and approximately 20°.

Claim 18 (Previously Presented): The joint according to claim 15, wherein said groove comprising at least two curvilinear portions is initially provided.

Claim 19 (Previously Presented): The joint according to claim 18, wherein said curvilinear portions initially have substantially identical radii of curvature.

Claim 20 (Previously Presented): The joint according to claim 19, wherein said radius of curvature is initially between approximately 2 mm and approximately 60 mm.

Claim 21 (Previously Presented): The joint according to claim 18, wherein the two curvilinear portions are separated by a substantially cylindrical central portion.

Claim 22 (Previously Presented): The joint according to claim 18, wherein said groove initially has a radial depth, the maximum value of which is selected such that the material section at the bottom of the groove is greater than the smallest of the critical sections of the threaded elements.

Claim 23 (Previously Presented): The joint according to claim 1, wherein said male and female threads are selected from a group consisting of conical and cylindrical threads and are each formed over at least one tubular element portion.

Claim 24 (Previously Presented): The joint according to claim 1, wherein in that said first tubular element is provided with a first rounded outer surface.

Claim 25 (Previously Presented): The joint according to claim 1, wherein said second tubular element is associated with a substantially symmetrical female/female connection sleeve and said first tubular element is associated with an end of a great length tube.

Claim 26 (Previously Presented): The joint according to claim 25, wherein said sleeve comprises a central portion extended on either side by two second tubular elements and initially provided over an outer surface with an annular zone having a reduced thickness selected such that the initial thickness of said sleeve in the region of this zone is greater than the smallest of the critical sections of the threaded elements.

Claim 27 (Previously Presented): The joint according to claim 2, wherein said first and second lips initially have shapes selected such that said first abutment surface rests on said fourth abutment surface before said second abutment surface is pressed onto said third abutment surface.

Claim 28 (Previously Presented): The joint according to claim 3, wherein said third inner surface of the second tubular element initially has, in the region of its connection to said fourth abutment surface, a first sealing surface generally having a selected angle of inclination relative to the longitudinal direction and in that said first tubular element initially has, in the region of its first outer surface and in the region of its connection to said first abutment surface, a second sealing surface generally having a selected angle of inclination relative to the longitudinal direction (A) in such a way that, during screwing, said first and second sealing surfaces are radially tightened against one another, generating a third sealing interference contact.

Claim 29 (Previously Presented): The joint according to claim 28, wherein said first and second sealing surfaces are arranged in such a way that said first sealing interference contact is generated between said first and second sealing surfaces after said third sealing interference contact, so as to reinforce said third sealing interference contact.

Claim 30 (Previously Presented): The joint according to either claim 28, wherein said selected angles of the first and second sealing surfaces are initially between approximately $+1^\circ$ and approximately $+30^\circ$.

Claim 31 (Previously Presented): The joint according to claim 28, wherein at least one of said first and second sealing surfaces is a conical surface.

Claim 32 (Previously Presented): The joint according to claim 28, wherein at least one of said first and second sealing surfaces is a rounded surface.

Claim 33 (Previously Presented): The joint according to claim 32, wherein said rounded surface comprises a toric-type portion.

Claim 34 (Previously Presented): The joint according to claim 28, wherein said first sealing surface is defined by a third local annular set-back toward the interior of said third inner surface.

Claim 35 (Previously Presented): The joint according to claim 28, wherein said second sealing surface is defined by a fourth local annular set-back toward the interior of said first outer surface.

Claim 36 (Previously Presented): A method for producing a sealed tubular expanded joint comprising a first tubular element comprising a first portion, provided with a male thread, and a second portion extending said first portion and comprising i) a first outer surface, ii) a first annular lip having a first axial abutment surface and a first inner surface and delimited by said first outer surface over a portion of the axial length thereof, and iii) a second abutment surface; and

a second tubular element comprising i) a female thread, matching the male thread and screwed thereto, ii) a second annular lip having a third abutment surface resting against said second abutment surface, a second outer surface, arranged to face said first inner surface, and a second inner surface, iii) a fourth axial abutment surface, and iv) a third inner surface extending between said fourth axial abutment surface and said female thread and defining with said second outer surface and fourth abutment surface an annular recess configured to receive said first lip, wherein said second and third abutment surfaces are conical surfaces having substantially identical angles of inclination relative to a plane transverse to a longitudinal direction, selected so as to allow said second abutment surface to rest against said third abutment surface, generating a first radial and sealing interference contact of one of said first inner and outer surfaces of the first lip against said second outer surface or said third inner surface respectively, the method comprising:

screwing said first and second tubular elements until said first lip is accommodated in said annular recess and said second abutment surface rests against said third abutment surface so as radially to tighten, in a sealed manner by forming a first radial and sealing interference contact, one of said first inner and outer surfaces of the first lip against said second outer surface or said third inner surface respectively, and

subjecting said expandable tubular joint, by means of an axially displaceable expansion tool, to a diametral expansion in a plastic deformation region, so as to force said first outer surface and said third inner surface locally to define a second sealing interference contact.

Claim 37 (Currently Amended): The method according to claim 36, wherein said first and second lips, ~~having~~ have shapes selected such that said first interference contact is established between said first inner surface and second outer surface, ~~are provided~~, and said first interference contact is not established until said second abutment surface rests on said third abutment surface.

Claim 38 (Previously Presented): The method according to claim 37, wherein said screwing firstly forces said first abutment surface to be pressed against said fourth abutment surface so as to cause said first lip to be subjected to axial compression in an elastic deformation region.

Claim 39 (Currently Amended): The method according to claim 36, wherein ~~an~~ expandable tubular joint is provided and said screwing forces first and second sealing surfaces to be radially tightened against one another, generating first a third sealing interference contact, then the first sealing interference contact, which comes to reinforce said third sealing interference contact.

Claim 40 (Previously Presented): The method according to claim 36, wherein said expansion generates a fourth sealing interference contact between a free end of the first inner surface and the second outer surface.

Claim 41 (Previously Presented): The method according to claim 36, wherein the radial expansion of the joint takes place at an expansion rate at least equal to 10%.

Claim 42 (Previously Presented): The joint according to claim 1, wherein the second outer surface of said second lip initially has, in the region of its connection to said third abutment surface, an annular portion inclined relative to said longitudinal direction by an angle of approximately 10°.

Claim 43 (Previously Presented): The joint according to claim 1, wherein the ratio between an extension of the second lip in the longitudinal direction and an extension of the recess in the transverse direction is between approximately 1.2 and approximately 1.6.

Claim 44 (Previously Presented): The joint according to claim 1, wherein, after said diametrical expansion, the joint is sealed with respect to fluid transmission between an interior and exterior of the joint.

Claim 45 (Previously Presented): The method according to claim 36, wherein, after said diametrical expansion, the joint is sealed with respect to fluid transmission between an interior and exterior of the joint.